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On the Linguistic Notion of Transitivity: How to Teach It within the Context of School Grammar

Ichiro Yuhara (PTL)
Department of Linguistics
International Christian University

This paper discusses the linguistic notion of “transitivity” for pedagogical purposes. I argue that the common definition in dictionaries and school grammar is insufficient and suggest an alternative pedagogical approach from a modular architecture of grammar. This approach is truer to the nature of transitivity and helps learners grasp the nuance of transitivity in its more complex form.

An old friend of mine once told me that there was a student in her class, who had persistently asked her about English grammar in greater detail than was covered in coursework. The student’s questions were often so meticulous that she occasionally found herself incapable of providing acceptable explanations. This is not an odd tale; not every teacher of English is armed with linguistically nuanced answers, nor are our texts written for the inquisitive student. Specialists of a variety of disciplines teach English in college. They sometimes come to me to confirm a way of illustrating a grammar point, grammatical relations of a sentence, or unique grammatical structures, such as the word class of *ago* as in *five years ago*. Due presumably to my sympathies, she also confided to me that she was not that confident in a distinction between intransitive and transitive verbs either. This might strike the reader as somewhat naïve, but perfectly capable of teaching English, nothing in her training would prepare her for questions like these. I thus told her that it is a matter of how many semantic constituents (linguistically named “arguments” after logic) are necessarily involved in the event described by a verb; if there is one argument, the verb is intransitive (e.g., *sneeze* as in *John sneezed violently*), but if there are two arguments, the verb is transitive (e.g., *embarrass* as in *John embarrassed Mary*), which, I added, is taught as requiring an “object” (here, *Mary*) in school grammar.

This explanation of “transitivity” as well as “intransitivity” is by no means satisfactory from a linguist perspective because there are a number of cases that fail to make their way into the two classes within and across languages. For examples, which category should the English verb *wait* (as in *John waited for Mary at the Tokyo station*) be assigned to? One may say with the logical definition that the answer is transitive in that two semantic arguments are essential for a description of the event associated with the verb (here, *John* and *Mary*). On the other hand, many learners dictionaries and grammar books list *wait* as intransitive in that the noun phrase *Mary* does not immediately follow the verb, requiring the preposition *for* to intervene (here, *wait for Mary*, but not **wait Mary* for American English). Then, is the verb *wait* simultaneously transitive and intransitive? (Is it not a contradiction?) When we turn to the Japanese language, the equivalent word *matu* as in *Taro-wa Hanako-o Tokyo-eki-de matta*, is undoubtedly transitive in that two arguments are respectively marked by the nominative case *-ga* (often overlaid by *-wa*) and the accusative case *-o*, each of which corresponds functionally to the subject and object positions, or preverbal and post-verbal positions, in

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English. If we follow the dictionary/grammar book definition of transitivity, is it then implied that while *wait* in English is intransitive, *matu* in Japanese is transitive? A natural question that follows is; does transitivity differ between English and Japanese, or for that matter, across languages despite apparent semantic similarities in act of waiting? If the answer is yes, how do we account for the English verb *await* as in *Chicagans awaited the opening of the World's Columbian Exposition*?

In what follows, I would like to suggest, albeit briefly, one way of answering these questions without much linguistic jargon for language teachers who might feel insecure in answering these questions. (By doing so, I would like to suggest the friend of mine's uncertainty is justifiable.) I will put forth (a) a distinction between intransitive and transitive is actually more complicated than is widely believed, and (b) if there is confusion, it may arise from the monolithic definition of transitivity in dictionaries and school grammars. It is my contention that (so-called) "transitive verb" is a derived concept, which forms a continuum with "intransitive verb." I will argue that it is thus perfectly legitimate to characterize a verb as having both characteristics, and also conceive of languages as differing as to their way of classifying a verb into intransitive (e.g., *wait for*) or else transitive (e.g., *matu* or *await*).

The Organization of Transitivity

Let me start this section with the intellectual shoulders that I stand upon; when one studies something as an object of scientific research, it is always of use to attempt to decompose the object *and* tease apart constituent elements according to kinds. If it is possible to de-synthesize the subject matter into independent factors that cannot be reduced, then accurate descriptions of each distinct part, or function, ideally lead to the whole (function) of that research object. Linguists have generally found this methodology effective for studies of human language, so that our knowledge of it (i.e., part of their research subject) is now broken down into multiple autonomous dimensions and studied under sub-disciplines such as phonology (grammar of sound), morphology (grammar of word), syntax (grammar of sentence), and semantics (grammar of meaning). Transitivity is arguably factorable also, and for the present paper, it suffices to recognize three independent grammatical components that work together to create transitivity. Following Sadock (in press), I will call them "Function-Argument Structure," "Role Structure," and "Syntactic Structure" respectively and assume that each of them has its own definition of transitivity independently of the others (thus each grammatical component is called "grammatical module" in literature). First, I provide a brief sketch of these three different grammatical structures and the way their transitivity is defined in each dimension.

Function-Argument Structure

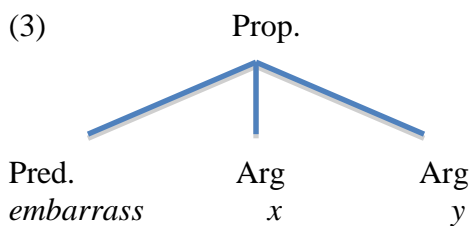
Function-Argument Structure is part of our semantic knowledge that provides combinatoric aspects of the meaning of a sentence. If you know the meaning of a verb (called "predicate"), you know how many "arguments" are needed for the sentence meaning. (This sentence meaning is called "proposition.") In the case of the predicate *sneeze*, the presence of one argument *x* is a necessary and sufficient condition to form a proposition, but in the case of the predicate *embarrass*, two arguments *x* and *y* are necessarily involved in forming a proposition. Thus, a string of words **John embarrasses* provides us the impression of incompleteness. This is traditionally represented in the following manner.

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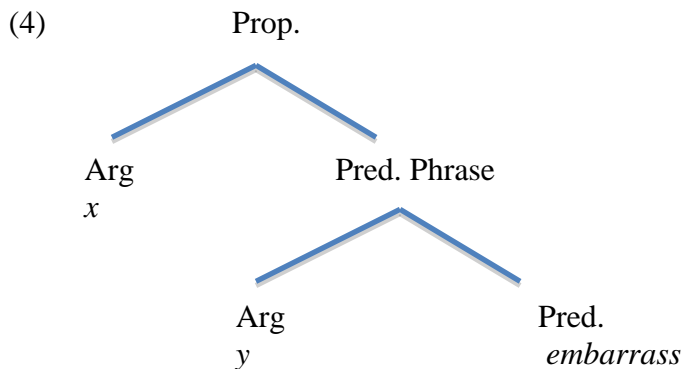
- (1) sneeze (x) (e.g., John sneezed violently.)
(2) embarrass (x, y) (e.g., John embarrassed Mary.)

To paraphrase these, a predicate is transitive if two arguments are necessary for its meaning to be understood (thus “two-place predicate”); otherwise, it is as opposed to transitive, namely, intransitive (or “one-place predicate”). It should be noted that predicates (as well as arguments) are not restricted to a particular part of speech, or formal representations of a language. Thus, despite its adjectival phrase status, *be fond of* as in John is fond of guacamole is transitive, while *be cute* as in Mary is cute is intransitive.

Logicians commonly treat two arguments, x and y , of a transitive predicate as both on a par with each other. They often write formulas like x, y (as in 2, above), which is roughly equivalent to tree diagram structures like (3) below.



Many linguists, on the other hand, regard a proposition as having an internal structure, in which one argument x has a prominent status and is separate from a phrasal unit consisting of the predicate and the remaining argument y as in the following tree diagram (4).



The linear order within this tree diagram is irrelevant, so that neither $(x (y, \text{Pred}))$ nor $(x (\text{Pred}, y))$, or else $((y, \text{Pred}) x)$ nor $((\text{Pred}, y) x)$, make any difference. What is of importance here is one of the arguments y is more closely tied with the predicate (called “internal argument”), thereby making the other argument x in asymmetrical relation to that predicate (thus x is called “external argument”). The two academic perspectives are functionally equivalent.

What has motivated linguists to choose (4) over (3), then? The answer is largely based on empirical matters. There is a great deal of cross-linguistic evidence that shows a constituent status, consisting of transitive verb and internal argument, even in VSO or OSV languages where V and O separate from the other in actual speech (e.g., Anderson & Chung 1978). The Japanese language is one such language that word order of external and internal arguments is allowed to be scrambled to the extent that the verb final requirement is fulfilled in forming a sentence. Therefore, for the propositional content *sakuban Taro-wa sushi-o tabe-*

sugi-ta ('*Last night Taro ate too much sushi.*'), the OSV word order is an equally well-accepted sentence as in (5) below.

- (5) sakuban sushi-o Taro-wa tabe-sugi-ta.
last.night sushi-ACC Taro-TOP eat-too.much-PAST
'Last night, Taro ate too much sushi.'

Crucially, despite the internal argument *sushi* (O) being fronted over the external argument *Taro* (S), it is still under the scope of the verbal suffix *-sugi* ('too much'), allowing the resulting reading where what *too much* was neither *ate* nor *Taro ate* but rather the predicate phrase *ate sushi* (Sugioka 1984). It is this kind of interpretation that lends support to the presence of semantic constituent structure like (4) over (3). (The verbal suffix *-sugi* is hence a predicate phrase modifier.) For a detailed defense of this position, the interested reader is referred to McCawley (1993).

To summarize this subsection, one way of defining transitivity is to count the "unsaturated" number of argument to form a proposition. One-place predicates are thus singly unsaturated propositions, and two-place predicates are doubly unsaturated propositions (logically called "relation"). Given a transitive verb forming the tighter unit with the internal argument (than with the external argument), the meaning of transitivity may be defined in a step-by-step fashion in Function-Argument Structure. Namely, it is a function from an argument to a predicate (e.g., *embarrass (Mary)*), which, in turn, feeds to function from an argument to a proposition; (e.g., (*embarrass (Mary)*) (*John*)). This formally enables us to equate intransitive predicates with predicate phrases as singly unsaturated, but for the present purpose of this paper, just whether one or two arguments are needed for a propositional content will serve to tell us which items are transitive and which are not.

Role Structure

In the previous subsection, I wrote part of our semantic knowledge involves how many arguments are needed for a proposition and the way they form a phrasal unit with a predicate. There, the number of argument alone, either one or two, determines transitivity. In this subsection however I focus on cognitive aspects of meaning, and how they play out in determining transitivity. Recall Function-Argument Structure uniformly treats the following English verbs, *break*, *resemble*, and *dread* as transitive, or two-place, predicates.

- (6) John broke the computer.
(7) Mary resembles her grandmother.
(8) The child dreaded the snake in the bush.

To fully understand these sentences in terms of transitivity, dyadic semantic information alone is not sufficient. For example, our semantic knowledge of *break* in (6) universally includes *the computer* stopped working properly by *John's* act of breaking. Note that this kind of change does not exist in *resemble* in (7), so that it is logically synonymous to say *Her grandmother resembles Mary*. Furthermore, in (8), the external argument *the child* is a psychologically influenced participant, rather than one affecting *the snake in the bush*. That is to say, the inverse relation to (6) arguably holds (thus *The snake in the bush terrified the child*), but nevertheless, all these examples are transitive in terms of the number of arguments.

Linguists have found that events like (6) are more likely to enter into the transitive

paradigm within and across languages, and assumed in grammar the presence of a more cognitive level of meaning, called a (Participant) Role Structure, where “event types” and “roles of participants” are clearly displayed. In that level of analysis, a predicate is transitive if there are two participant roles involved in the description of an event, one of which acts more volitionally or directly on the other (thus it is linguistically called “agent” or “causer”), the other of which becomes affected in some way or other and consequently undergoes change (called “patient” or “undergoer”). To put it in other words, if there is a predicate that means *destroy*, *kill*, *hit*, or *break* in a language, it should necessarily be transitive, and there is presumably no language whose counterpart of *break* (6) is represented as an intransitive predicate. If such a predicate exists, the meaning of it ought to be different from that of (6). (The assumption is that all human experiences are more or less the same regardless of languages.) It should be noted in passing that the English verb *break* countenances intransitive usage as in *My computer completely broke down*. However, the presence of the causer is never implied in that usage. The homophonic status of *break* is hence accidental if not totally arbitrary.

On the other hand, languages differ as to how to categorize predicates like *resemble* in (7) and *dread* in (8). English formally identifies them with the transitive usage of *break*, so that nuances in meaning are not reflected at surface. However, this is where many languages show different formal representations and grammatical behaviors. For instance, Japanese assigns to the internal arguments a case particle such as *-ni* and *-ga*, which distinguishes itself from the accusative case particle *-o*. Odd as it may seem, some Japanese dictionaries and grammar books hence classify (10) and (11) below as intransitives even though they take objects.

- (9) Taro-ga sono pasokon-o kowasi-ta.
Taro-NOM the personal.computer-ACC break-PAST
‘Taro broke the computer.’
- (10) Hanako-wa obaasan-ni ni-tei-ru.
Hanako-TOP grandmother-DAT resemble-ing-PRES
‘Hanako resembles (her) grandmother.’
- (11) watasi-(ni)-wa hebi-ga kowa-i.
the child-(DAT)-TOP fire-NOM fear-PRES
‘I fear snakes.’

Human language seems to utilize a variety of semantic features so as to draw a formal line on the face of similar examples across languages (i.e., (9) on one side, and (10) and (11) on the other). Included in them are (i) presence or absence of kinesis, (ii) endpoint in action, (iii) punctuality, (iv) agent’s volitionality or controllability, and (v) how much a patient is individuated (e.g., Hopper & Thompson 1980; Tsunoda 1985). No absolute consensus is yet achieved, but most linguists agree in that “(low) degree of affectedness” and/or “subject participant’s (non)controllability over event” underlie many of the non-canonical transitive representations across languages.

Two caveats complicate this cognitive semantic definition of transitivity. First, the reader may have had an impression that English (if compared to Japanese) has a limited formal capacity in terms of expressing cognitive semantic continuum. This may appear true on the surface, but no expressive superiority or inferiority actually exists. That any language

has its own way of describing all one wants to say is the most important characteristic of human language. Thus, if one needs to describe a transitive event-type such as *kick* without reference to degree of affectedness, the English language allows it. One might say *I kicked at the ball*, though this removes the object from a transitive construction and replaces it with volitional interpretation. Second, closely related to the first, even though English syntax uniformly frames external and internal arguments within the SVO order (as S and O), that does not necessarily imply no access to Role Structure. Differences in syntactic behaviors of (6), (7), and (8) do show the grammatical force of Role Structure. One example will have to suffice here; passivization to transitive predicates is generally sensitive to degree of affectedness. Transitive verbs with a more volitional agent and a more affected patient are more easily passivizable than verbs with a less volitional agent and a less affected patient. School grammars tend to assume either full grammaticality or full ungrammaticality, but that is fabrication for pedagogical purposes. Thus, while (6) enters into the passive construction without reservation, (7) and (8) fail to undergo passivization because the degree of agentivity and patientivity is dubious in light of our definition of cognitive transitivity. (The * and ? marks below mean “not acceptable” and “somewhat odd,” respectively. To my ears, (14) is not a perfect passive if it is compared to the more causative counterpart *The child was terrified by the snake in the bush.*)

- (12) The computer was broken by John. (←6)
- (13) *Her grandmother is resembled by Mary. (←7)
- (14) ?The snake in the bush is dreaded by the child. (←8)

This is presumably near-universal, and it is observable in Japanese examples (9), (10), and (11) as well; (9) is way more easily passivizable than (10) and (11), which fail to undergo passivization for various reasons.

Incidentally, since passivization applies to external and internal arguments with high degree of affectedness, the following objects of the prepositions (such as *in* and *at*) in (15) and (16) are also the target of passivization. In literature, this is called “pseudo-passive” or else “prepositional passive” (Huddleston & Pullum 2005).

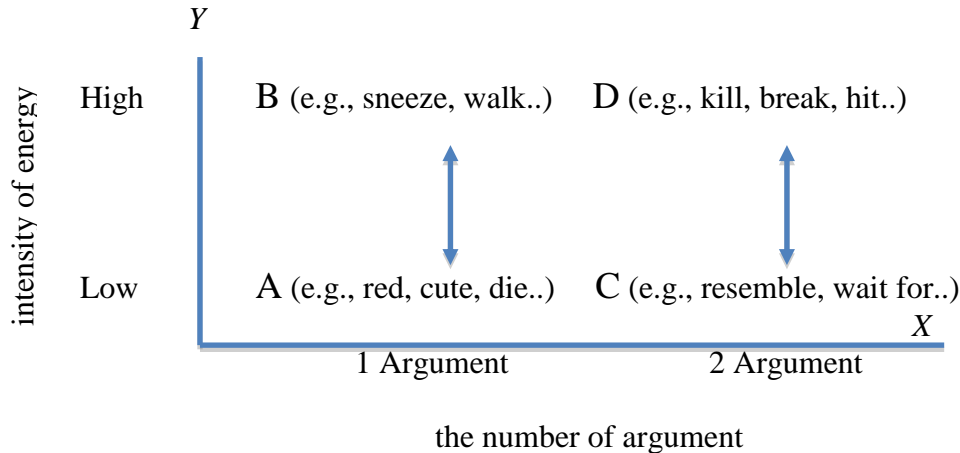
- (15) This bed has not been slept in _ (by anybody).
- (16) For the past few decades, the nuclear scientist was laughed at _ (by everyone).

One may say that both the verbs *sleep* and *laugh* are intransitive in that there is only one participant (or argument) involved in the event of *sleeping* and *laughing*; however, to the extent that *the bed* and *the scientist* are interpreted as significantly affected, the verb meanings extend and incorporate them as internal argument. They are thus allowed to advance to the subject of passive sentences in the English grammar.

As a construct of transitivity I have so far introduced two functionally independent semantic dimensions, Function-Argument Structure (in the previous subsection) and Role Structure (in this section). I have also pointed out that what kind of role two participants bear plays a significant role in predicting whether a verb enters into the canonical transitive paradigm, though English is apparently indifference to this regard. Figure 1 depicts the relationships between transitivity and semantic meaning. At the risk of simplifying matters a great deal, let us suppose that the vertical axis *Y* is intensity of energy that a subject participant (or external argument) produces (for 1 Arguments); the higher it becomes (towards

B), a subject participant typically becomes a more sentient agent. The horizontal axis *X* is the number of arguments, which is either one or two. For transitive predicates (2 Arguments), let us further suppose the vertical axis *Y* entails transmission of the energy that a subject participant makes towards a patient. (Thus, an internal argument undergoes some change in group D below.)

Figure 1. Distributions of Intransitive and Transitive Predicates



We are not concerned about the exact nature of intransitive predicates in this paper, but all participant roles fall in the continuum between Groups A and B. (To distinguish, they are technically called “unaccusatives” and “unergatives” respectively.) If anything, predicates in Group B may more easily obtain transitive usage (e.g., *walk a dog*; *sneeze the napkin off the table*). Many transitive predicates also fall in the continuum between Groups C and D. It should be noted that how a predicate is formally represented -- as verb or adjective, or whether an internal argument figures in a prepositional phrase or noun phrase -- is irrelevant in Figure 1 above. Generally speaking, predicates in Groups A and C show a great deal of variations about their formal representations within and across languages.

Recall that I asked the reader a question at the beginning of the present paper; why is *wait for* in English taught as intransitive while the Japanese counterpart *matu* is transitive? The answer is simply because semantic information is not considered at all. The predicate is thus arbitrarily placed in the intransitive paradigm (*wait for* in English) and in the transitive paradigm (*matu* in Japanese). No deeper explanation should be sought for this kind of phenomena between languages. In his admirable work of transitivity between English and Japanese, Jacobsen (1992) lists inconsistencies of semantically transitive predicates between the two languages (*ibid.* 46). Of significance in the present context, all of the contrasted predicates are unpredictable other than that they congregate around Group C as shown below. Crucially, notice that there are no Group D predicates (like *break* and *kill*) where degree of affectedness is considerably high (i.e., no verbs with a typical agent/causer and an affected patient listed in the contrast).

- (17) English uses transitive form, while Japanese does not.
- | | | |
|--------------------------|---|-----------------------|
| a. consult a doctor | : | isya-ni soodan-suru |
| b. meet a friend | : | tomodati-ni au |
| c. marry Hanako | : | Hanako-to kekkon-suru |
| d. see a mountain | : | yama-ga mieru |
| e. smell something funny | : | henna nioi-ga suru |

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(18) Japanese uses transitive form, while English does not.

- | | | | |
|----|-------------------------------|---|-----------------------------|
| a. | tomodati-o matu | : | wait for a friend |
| b. | ongaku-o kiku | : | listen to music |
| c. | tomodati-no syusse-o yorokobu | : | rejoice at friend's success |
| d. | kooen-o aruku (yokogiru) | : | walk in (through) the part |
| e. | tonneru-o tooru | : | go through a tunnel |

We can add a number of pairs of verbs to the lists above. In terms of language learning, then, transitive predicates that fall in Group C, including ones in (17) and (18), are significantly more important than ones in Group D. This is because the internal arguments of such predicates must be individually learned and memorized as to how they are formally represented in the target language. (To confess, it is still difficult for me to say *I attend a conference* in English. I instead tend to add *to* as in **I attend to a conference* due to L1 transfer from Japanese.)

Syntactic Structure

Moving back to decomposing transitivity, the third (and final) grammatical component that constitutes transitivity is Syntactic Structure. When school grammars as well as language teachers say grammatical relations such as “subject” and “object,” all of them refer to this level of analysis, which widely differ from language to language. We have already observed one case in this paper; while Japanese uses a case particle of a noun phrase so as to indicate grammatical relations, English resorts to word order of a noun phrase. If one is asked about his/her way of defining transitive verbs, one would probably say that transitive verbs need an object. When further asked about the definition of objects, one would probably point to the presence of another noun phrase. It is in this formal sense that transitivity, or transitive verb, is widely recognized, understood, and taught. Therefore, in this common understanding, while *await* as in *Chicagoans awaited the opening of the World's Columbian Exposition* is transitive, *wait* as in *John waited for Mary at the Tokyo station* is intransitive in that the verb is followed by a prepositional phrase (*for Mary*), but not by a noun phrase. By now, the reader is supposed to be able to say that both are semantically transitive, (or doubly unsaturated predicates in Function-Argument Structure terms), although two participant roles of *await* and *wait* are both not typical with respect to Role Structure.

Another familiar instance is *reach* and *arrive at* in English. These two verbs are also semantically transitive in that both of them require two arguments, *goer* and *goal*, to be fully understood in a sentence (though degree of affectedness is quite low just like *await* and *wait*). However, English syntax happens to have two formal ways of representing the semantic concept, whereby school grammars classify the former as transitive (*Mary eventually reached the Tokyo station*) and the latter as intransitive (*Mary eventually arrived at the Tokyo station*). Given transitivity is radically separated into different grammatical components and taught as shown in this paper, there might have been less confusion about how the semantic concept reach/arrive is formally categorized in grammar.

To summarize, transitivity is usually understood on the basis of the presence of two noun phrases in pedagogical grammar, via syntax. However, transitivity can be defined semantically as well. Let me recapitulate questions I asked the reader at the beginning of the present paper and provide a brief answer to them here.

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- (19) Questions that a teacher may have wanted to ask about transitivity
- a. Q: Is the verb *wait* simultaneously transitive and intransitive?
A: Yes. The verb *wait* is semantically transitive but formally intransitive requiring the preposition *for*.
 - b. Q: Is it not a contradiction?
A: No, if semantics and syntax are recognized as having an equal footing in grammar.
 - c. Q: Is it then implied that while *wait* in English is intransitive, *matu* in Japanese is transitive?
A: Yes, in terms of formal representations. However, they are both semantically transitive, and there is presumably no language where its counterpart is semantically intransitive.
 - d. Q: Does transitivity differ between English and Japanese despite apparent semantic similarities in act of waiting?
A: Yes (in terms of formal representations). Low transitive predicates around Group C in Figure 1 tend to vary in their way of choosing intransitive or transitive forms within and across languages.

Reconstructing Transitivity

I have so far described three highly correlated but essentially autonomous grammatical components and their members by decomposing transitivity. To recapitulate quickly, in Function-Argument Structure, a predicate is transitive if two arguments, or its external and internal arguments, are needed to form a propositional content. In Role Structure, a predicate is transitive if an agent (or causer) role and a patient (or undergoer) role are two participants of the event that is described by a verb. I have called these two domains *semantic* in this paper. Finally, the standard definition of transitivity is the presence of two nominal phrases that are constituents of a sentence. This last definition concerns linguistic forms alone, and almost all definitions of transitivity in dictionaries and grammar books are on this “form”, or what I call Syntactic Structure, basis, thereby giving us a misleading impression that transitivity is a monolithic concept. Although I have just said ‘misleading,’ it is not intended that the common definition of transitivity is utterly ill-grounded. Though it is insufficient and confusing, if proper instruction is provided, the formal/syntactic notion remains a highly reliable indicator. In what follows, let me suggest such a pedagogical remedy in reconstructing transitivity in defense of our tri-componential view.

Table 1 below shows inter-componential categorical correspondence conditions for a sentence. With the present view of transitivity, I have implicitly pointed out that the intransitive sentence *John sneezed violently* is simultaneously a proposition in Function-Argument Structure and an event-type in Role Structure. Moreover, the subject noun phrase *John* corresponds to an (external) argument in Function-Argument Structure and a participant role (e.g., sneezer) in Role Structure at the same time.

Table 1. Categorical Correspondence Conditions

F/A Structure	Role Structure	Syntactic Structure
proposition	event-type	sentence
argument	Participant role	noun phrase (NP)

Furthermore, Table 2 shows linear correspondence conditions for typical transitive sentences. I have again hinted in this paper that for sentences like *John broke the computer*, the subject nominal *John* is simultaneously the external argument in Function-Argument Structure and an agent role in Role Structure. Similarly, the object nominal, *the computer*, corresponds to the internal argument and also to a patient role.

Table 2. Linear Correspondence Conditions

F/A Structure	Role Structure	Syntactic Structure
external argument	agent	subject NP
internal argument	patient	object NP

Now, for the sake of discussion, let us suppose that these two Conditions, Tables 1 and 2, are all default thus ‘violable’ conditions without differences in languages. Given that, when English dictionaries entry *wait* as intransitive, it turns out that they recognize the shaded part in Table 2 as lacking and requiring a preposition phrase (e.g., *for Mary*) instead of a noun phrase. In other words, if Tables 1 and 2 are taught and recognized as an integral part of our knowledge of language, we may reasonably say that what is the most informative grammatical component is Syntactic Structure (e.g., Gleitman 1991). To wit, on encountering any semantically transitive predicate, we can expect a target language to represent the two arguments with two noun phrases. That the English verb *wait* in fact requires *for* (as in *John waited for Mary*) is hence something that language learners must learn and memorize by finding a clue from relations between two participant roles (e.g., degree of affectedness). Listing the word as formally intransitive, as many dictionaries do, is thus justified if language teachers properly introduce and explain something like Tables 1 and 2 as an important part of the grammatical architecture of language.

Finally, as a summary of the present paper, I would like to consider one implication of the proposition that transitivity is a derived or tri-modular concept. I have suggested throughout this paper that transitivity ought not to be identified with a dyadic relation nor with the presence of two noun phrases. What this means is transitivity is produced by the formal interaction of semantico-pragmatic and syntactic properties, which are independently motivated for languages. Given three informationally distinct kinds of grammatical modules, Function-Argument Structure (2 arguments), Role Structure (2 participant roles), and Syntactic Structure (2 noun phrase), redundantly characterize transitivity as we have assumed, there are logically 8 ($=2^3$) possible classes of predicates, thereby providing a principled basis for capturing the distribution of various types of predicators in human language, which otherwise would be classified as peculiar to a particular language, or as isolated examples. Table 3 below illustrates the 8 formally possible classes of predicates; the numbers in the cells indicate (from left) that the number of noun phrase (in Syntactic Structure), argument (in Function-Argument Structure), and participant role (in Role Structure) that the predicators bear along these three grammatical dimensions. Due to space limitation, all examples are from English but the reader is invited to find counterparts from his/her mother tongue.

Table 3. Continuum between Intransitive and Transitive Predicates

	Syntactic Structure	F/A Structure	Role Structure	class of predicates	examples
I	1	1	1	pure intransitives	<i>be red, die, walk, run, sneeze..</i>
II	1	1	2	passives / middles	<i>be laid off / sell well..</i>
III	1	2	1		
IV	1	2	2	many Group C predicates	<i>wait, arrive, listen..</i>
V	2	1	1	light verbs / verbs with a cognate object	<i>take a walk / sleep a troubled sleep</i>
VI	2	2	1	reflexive verbs	<i>pride oneself</i>
VII	2	1	2	some VP idioms	<i>kick the bucket (die), beat it (leave)</i>
VIII	2	2	2	pure transitives	<i>kill, hit, break, destroy..</i>

This transitivity chart has two important implications. The first is that it is inadequate to conceive of intransitive and transitive predicates as a discrete category that *a priori* presupposes the existence of one or two entities; there is actually a categorial continuum that stretches from “pure intransitives” (Class I) to “pure transitives” (Class VIII) in which no mismatch is made. On the basis of the number of noun phrases in Syntactic Structure, dictionaries as well as school grammars classify Classes I, II, III, and IV as intransitives (1 nouns) and Classes V, VI, VII, and VIII as transitives (2 nouns). The second is the presence of an implicational hierarchy in grammar that provides a constraint on the formally possible predicate classes. It is important that there are two rows that are shaded in the above chart, Classes III and VI, that have one feature in common. While the number of arguments in Function-Argument Structure is 2, the number of participant roles in Role Structure is 1. I conjecture that there are presumably few predicators in the grammars of human languages that fall into these categories. This makes a sense. Role Structure is a semantic level of what we perceive and experience in reality; Function-Argument Structure abstracts it and Syntactic Structure encodes only part of it in actual speech. (English predicates like *pride* as in *Mary prides herself on her beauty* may be exceptional; there is one participant role, *Mary*, which is realized in two noun phrases and two arguments *Mary* and *herself*.)

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Although the transitivity chart above is merely intended as a illustration, not as absolute analysis, but if transitivity is designed as I have proposed in this paper, it should be possible to place many (so-called) intransitive and transitive verbs into the continuum between Classes I and VIII, and the justification of the chart draws entirely upon empirical facts. For example, passive verbs like *I was laid off last month from the college* and middle verbs like *Macintosh's new OS10.7 will sell very well* may reasonably be characterized as Class II predicates in the sense that there is an unspecified participant role (such as *the department chair* and *the Apple stores*) in the events despite its intransitive status in Syntactic and Function-Argument Structures. The verb *wait* squares with Class IV, where many Group C predicators in Figure 1 (such as *arrive*, *listen*, and *rejoice*) are also considered constituent members. Verbs like *take* as in *Craig regularly takes a walk in Bryan Park* and *sleep* as in *Chiho slept a troubled sleep last night* may be classified into Class V, for the object nominals *a walk* and *a troubled sleep* arguably play no corresponding semantic roles at all. Furthermore, verbs used in some verb phrase idioms such as *John kicked the bucket* may be grouped into Group VII to the extent that the number of arguments is only one (i.e., *John died.*). In my view, there is a great deal of circumstantial evidence in favor of this tri-componential view of transitivity, but I have already explained more than I know at this point, so I will save the details of Table 3 for other venues.

Conclusion

I began this paper with an English teacher's simple question on where to draw a line between intransitive and transitive verbs. By decomposing the linguistic notion transitivity, I discussed that it is actually more complicated than widely believed and, if there is any confusion, the cause of it may lie in our assumption that intransitivity and transitivity are mutually exclusive concepts. In support of a tri-modular view of transitivity, I then argued that the boundary between transitive and intransitive verbs is in fact a continuum, so that there is nothing wrong with defining a lexical item as semantically transitive but syntactically intransitive, or the opposite. I also suggested one way of reconstructing the common view of transitivity and how to implement the proposed view in pedagogical grammar. It is my hope that this short paper dissolves some puzzle about transitivity that the reader was hesitant to ask, despite his/her intuitive correctness about the nature of it.

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